

RIVERS AND FLOODS

[River and Flood Division, MERRILL BERNARD in charge]

By THOMAS S. SOUTHWICK

Floods during April and May 1939 were numerous throughout the eastern part of the United States and the Mississippi River system with the greater number occurring in April. Flooding was generally confined to moderate stages although a few extremes were recorded. Damage to property was small although there was an appreciable amount of damage to prospective crops, due to the occurrence of floods during the planting season.

The greater number of floods resulted from a widespread disturbance which traversed the Middle West and the Ohio Valley during the period April 15-17. This disturbance was characterized by marked instability with attendant thunderstorms, tornadoes, and high intensities of rainfall, especially in Arkansas.

St. Lawrence drainage.—Abundant rainfall in the Great Lakes region during April maintained the streams at moderate to high stages. A rain of about an inch and a half on April 17 caused the Red Cedar and Grand Rivers in Michigan to go over their banks. Flood stages prevailed from 4 days to a week. Damage was slight.

Atlantic Slope drainage.—Snow surveys during the middle of April in the headwater areas of the Connecticut and Merrimack Rivers indicated a water content ranging from a few inches to as much as 15 inches. This snow cover prevailing so late in the season had for some weeks constituted a flood menace which was causing some anxiety in New England.

The run-off from the snow occurred in the latter part of April, fortunately without serious consequences. The rainfall for April was above normal with the greater portion falling in the first 3 weeks of the month. There were no periods of abnormally high temperatures so that the run-off was characterized by a gradual rise to moderate stages rather than to sudden and disastrously high stages as had been feared. An exception was the Pemigewasset River at Plymouth, N. H., where the stage rose suddenly from 3.2 feet on the morning of April 19 to 11.2 feet (flood stage 11 feet) during the afternoon of April 20.

Stages on the Merrimack and Connecticut Rivers were generally above flood stage on April 20. On the Merrimack River, the period above flood stage was only 2 days, while on the Connecticut the flood period extended into May at a number of stations.

Streams remained high during the first 2 weeks of May with flood stage being reached at North Stratford, N. H., and White River Junction, Vt. There was no damage reported in these overflows.

Rainfall during April over the South Atlantic States was about half of normal, but the rivers were still full in their lower reaches from the copious precipitation of February and March. The occasional rains of early April sufficed to raise rivers above flood stage on the Cape Fear, Savannah, and Altamaha Rivers during the early part of the month. Flood stages were again attained in early May as the result of rains at the close of April on the Roanoke and Cape Fear Rivers. All stages were moderate with no damage reported.

Stages slightly above flood stage were reached on the Santee River during April and May as the result of the release of impounded water.

East Gulf of Mexico drainage.—Rainfall was deficient during April but streams were rising from the precipitation of the previous month and moderate flood stages

occurred early in April on the Apalachicola, Chickasaw, Tombigbee, and Pearl Rivers. Stages reached were considerably below those of February and March. The only damage reported was in the Pearl River drainage where losses amounting to \$3,450 occurred. Damage elsewhere was confined to the delay in planting crops.

Rainfall was above normal during May with most of the precipitation occurring in the last 2 weeks of the month. Rivers rose, but, except at Aberdeen, Miss., and Lock No. 3 on the Tombigbee River, flood stages had not yet been attained at the close of May.

Upper Mississippi Basin.—The flood of March in the Wisconsin and Illinois Rivers continued into April with falling stages. The Mississippi River was above flood stage early in the month as a result of these floods.

A rain of about an inch and a half during April 5-6 over the Meremec River caused minor flooding on April 7-8.

Rivers went above flood stage in the middle of April as the result of the widespread disturbance which traversed the region during the period April 15-17. Storm totals were about 3 inches. The Illinois, Bourbeuse, and Meremec Rivers were above flood stage by the 17th or 18th of April. Crests on the lower Illinois River were not reached until late in the month and additional rains caused flood stages to continue into May.

The overflow on the Mississippi River was the result of the run-off from these floods adding to the river already at high stage from the floods of March. Stages were moderate.

There was an appreciable damage reported, as follows: On the Wisconsin River, 3,400; the Meremec River, \$62,500; and the Mississippi River, \$13,575. Most of the damage was to prospective crops.

Missouri Basin.—Stages slightly above flood stage occurred on the Missouri River early in April as a result of the Spring break-up.

A comparison of crest stages during the Spring break-up in 1938 and 1939 as compiled by the official in charge, Weather Bureau Office, Kansas City, follows:

	Flood stage	Crest 1938	Stage 1939		Flood stage	Crest 1938	Stage 1939
	Feet	Feet	Feet		Feet	Feet	Feet
Bismarck, N. Dak.....	19	20.5	22.2	Omaha, Nebr.....	19	18.4	19.4
Pierre, S. Dak.....	15	12.9	14.2	Nebraska City, Nebr.	15	16.6	17.1
Yankton, S. Dak.....	12	9.2	10.1	St. Joseph, Mo.....	17	13.7	15.8
Sioux City, Nebr.....	19	13.2	14.4	Kansas City, Mo.....	22	14.7	17.4

The total damage reported from this rise was \$165,825 and was mostly damage to prospective crops.

The storm of April 15-17 resulted in overflows of mild proportions in the Big Blue, Grand, Gasconade Rivers, and the Missouri River below Hermann, Mo. Damage of \$3,500 to bridges and highways was reported in the Big Blue River drainage; in the lower Missouri the damage is estimated at \$86,500.

Ohio Basin.—Flood stages occurred early in April at a number of stations on the Green and Ohio Rivers. These rises were a continuation of the floods of February. The crest from this flood reached Cairo, Ill. on April 11, with a crest stage of 41.5 feet.

Another flood occurred in the Ohio Valley as a result of the storm of April 15-17. The flood area embraced the

Ohio River, its northern tributaries and the headwater areas in West Virginia. The Kentucky, Cumberland, and Tennessee Rivers did not experience flood stages.

This second Ohio flood was caused by a 3-inch rain, most of which fell within a 36-hour period. This resulted in rapid rises of generally shorter duration than the February flood. In fact, this flood was marked by less severity in all respects and less damage resulted than in the former flood. At a number of points, however, the January-February stages were exceeded.

The total damage reported in the Ohio River Valley for this flood is \$848,801 of which the greater part is damage to prospective crops and the suspension of farming operations.

Following are abstracts of reports submitted by the River district centers of the Weather Bureau:

Pittsburgh, Pa.—W. S. Brotzman, official in charge:

The West Fork River at Weston, W. Va., rose from a stage of 2.5 feet on the morning of April 15 to 20.2 feet, or 5.2 feet above flood stage, by 10:30 p. m. of the 16th. This was the highest stage since 1890. Damage on this river was confined to flooding of cellars in Weston and Clarksburg, and some submergence of highways.

Practically all of the Tygart was impounded in Tygart Dam so that the Monongahela River did not reach flood stages above the mouth of the Cheat River. The heavy output of the Cheat added to high stages in the Monongahela River caused flood stages in the lower Monongahela River. No damage was done except for suspension of navigation while water was over the lock walls at Lock 5.

Parkersburg, W. Va.—S. S. Schworm, official in charge:

The rise in the Little Kanawha River was one of the most rapid ever known, producing a runout current at Parkersburg that was probably the swiftest of record. The crest at Glenville, W. Va., was 0.6 foot less than the highest of record (in 1926). The crest at Creston was 1.2 feet above the highest of record (previous highest stage, 32.0 feet March 14, 1918).

At Glenville, W. Va., practically all business houses were flooded. Other river towns above and below Glenville reported highest inundation of record.

Cincinnati, Ohio.—W. C. Devereaux, official in charge:

This flood was confined mainly to the Ohio River. At the time of the heavy rains, the Ohio River in this district was at about normal stage, while the tributaries were relatively low.

Reports on the morning of April 16 showed substantial rises with the Ohio River rising at the rate of five to seven-tenths of a foot per hour. Flood stages were reached in only three of the tributaries, namely, the Elk at Clay, W. Va.; the Little Miami at Kings Mills, Ohio; and the Licking at Falmouth, Ky.

As compared with the February 1939 flood, the crests on the Ohio River were from 0.2 to 6.3 feet lower from Cincinnati to Dam No. 28, at Dam 37 it was the same, at Dam 38 it was 0.1 foot higher and at Dam 39, it was 0.6 foot lower.

The damage along the three tributary streams was small, while along the Ohio it was less than in the February 1939 flood.

Louisville, Ky.—J. L. Kendall, official in charge.

Although the crest at Cincinnati was almost the same as in the February rise, the crest at Louisville was 1.5 feet less because the flooding in this district was not supported by any rise of consequence in the Kentucky River or by heavy local rainfall. The resulting damage was not great, being largely confined to delay in planting of crops.

Evansville, Ind.—E. E. Unger, official in charge:

The crest stage at Evansville was 43.4 feet on April 23. This

made the third successive month that the river had passed the 40-foot mark. Although this flood was of considerably shorter duration than in February-March 1939, the silt deposit was very heavy, though not as heavy as after last month's flood.

The April 1939 high water was a major flood, but due to the fact that it followed so closely the floods of February-March 1939, and the great 1937 flood, the damage was at a minimum. Principal damage was to crops and suspension of farming operations.

White and Arkansas River Basins.—Flood stages continued into April on the lower reaches of the White River, with falling stages, the crests having been reached in March. Heavy rain on April 5-6 caused mild overflows on the lower Black River and prolonged the period of high stages on the lower White River. Slight flooding also occurred as a result of this storm on the North Canadian and Poteau Rivers in Oklahoma and on the Petit Jean River in Arkansas with only slight damage.

The general storm of April 16-17 was accompanied by very heavy precipitation, the 2-day storm totals for a few points being as follows: Black Rock, Ark., 4.42 inches; Calico Rock, Ark., 4.20 inches; Batesville, Ark., 4.54 inches; Poteau, Okla., 6.56 inches; Danville, Ark., 10.04 inches. Overflows occurred on the Black, White, Poteau, and Petit Jean Rivers. The crest stage at Danville, Ark., on the Petit Jean River was the highest of record. Damage on the Black River amounted to \$500. On the Poteau River the damage reported was \$12,300. Damage figures are not available for the Petit Jean.

Red River Basin.—The flood situation was similar to that prevailing in the White and Arkansas Basins. A few stations were still in flood from the previous month. The rain of April 5-6 caused overflows of small proportions on the Ouachita, Little, and Sulphur Rivers. The Black River at Jonesville, La., remained at slightly above flood stage from March until May 2.

The April 16-17 storm was not characterized by the excessive amounts found to the north except in the Saline River drainage where Benton, Ark., had a storm total of 5.53 inches. Moderate stages were reached, but no appreciable damage occurred.

Lower Mississippi Basin.—Flood stages prevailed along the Mississippi River and its tributaries throughout much of April and May, as a result of widespread floods throughout the Mississippi River system, augmented by the local run-off from the flood-producing rains of the period. Heights above flood stage were only nominal, but the overflow did some damage to prospective crops. The greatest reported was in the Memphis area where damage amounted to \$569,150.

West Gulf of Mexico drainage.—On the Trinity River, flood stages were reached as a result of the rains of April 16 and 17. Flooding was slight with damage reported at \$2,375.

Slight flooding occurred on the Nueces River at Cotulla, Tex., on May 8 and May 16-17. No damage resulted. Flood stage was slightly exceeded at Brownsville, Tex., on the Rio Grande for a few hours on May 16 with no damage.

Table of flood stages during April and May 1939

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
ST. LAWRENCE DRAINAGE					
Lake Michigan					
Red Cedar:	Feet			Feet	
Williamston, Mich.....	6	Apr. 18	Apr. 21	7.2	Apr. 19
East Lansing, Mich.....	8	18	21	8.3	19
Grand: Eaton Rapids, Mich.....	8	18	24	8.5	19-20
ATLANTIC SLOPE DRAINAGE					
Connecticut:					
North Stratford, N. H.....	10	May 9	May 9	10.0	May 9
South Newbury, Vt.....	18	{Apr. 20	3	26.5	Apr. 24
White River Junction, Vt.....	18	{May 5	13	22.8	Apr. 11
Walpole, N. H.....	25	Apr. 21	Apr. 30	20.9	May 26
Montague City, Mass.....	28	20	28	30.9	Apr. 23
Holyoke, Mass.....	9	23	28	31.5	23
Hartford, Conn.....	16	20	May 3	9.7	23-24
Pemigewasset: Plymouth, N. H.....	11	20	Apr. 20	21.8	25
Merrimack:				11.2	20
Franklin Junction, N. H.....	14	20	21	16.0	20
Concord, N. H.....	12	21	22	13.0	21
Rhode:					
Weldon, N. C.....	31	May 3	May 4	34.0	May 3
Williamston, N. C.....	10	7	10	10.3	9
Neuse:					
Neuse, N. C.....	14	4	6	16.5	5
Smithfield, N. C.....	14	6	7	14.0	6-7
Cape Fear: Lock No. 2, Elizabeth-	20	{Apr. 1	Apr. 1	20.2	Apr. 1
town, N. C.....	20	{May 4	May 5	21.4	May 5
Santee:					
		{Mar. 30	Apr. 9	13.4	Apr. 2
		Apr. 13	15	12.4	14
		19	23	12.7	21-22
		27	30	12.6	29
Rimini, S. C.....	12	May 4	May 7	12.6	May 5-6
		11	14	12.7	14
		{Mar. 30	Apr. 10	12.8	Apr. 4
		Apr. 21	24	12.2	23
Ferguson, S. C.....	12	29	May 1	12.1	{May 1
		May 7	7	12.0	7
		13	15	12.2	14
Savannah: Clio, Ga.....	11	Apr. 4	Apr. 16	14.0	Apr. 9
Altamaha: Charlotte, Ga.....	12	5	12	14.1	9
EAST GULF OF MEXICO DRAINAGE					
Apalachicola: Blountstown, Fla.....	15	Mar. 30	13	19.8	4
Tombigbee:					
Aberdeen, Miss.....	34	{Apr. 1	2	35.1	1
Lock No. 4, Demopolis, Ala.....	39	{May 26	May 27	34.4	May 26
		Apr. 1	Apr. 12	43.2	Apr. 4
Lock No. 3, Ala.....	33	{Mar. 31	16	45.8	4
		Apr. 20	23	36.4	21
Lock No. 2, Ala.....	46	Apr. 3	7	46.9	Apr. 5-6
Lock No. 1, Ala.....	31	3	15	32.9	7-8
Chickasawhay: Enterprise, Miss.....	20	Mar. 31	1	20.8	1
Pearl:					
Jackson, Miss.....	18	30	10	23.1	6
Monticello, Miss.....	15	30	3	17.4	Mar. 31
Columbia, Miss.....	17	Apr. 1	2	17.5	Apr. 1-2
Pearl River, La.....	12	2	16	15.0	5
MISSISSIPPI SYSTEM					
Upper Mississippi Drainage					
Wisconsin: Portage, Wis.....	17	Mar. 29	1	18.2	Mar. 30
Illinois:					
Peru, Ill.....	17	Apr. 19	23	17.2	Apr. 21
Havana, Ill.....	14	{Mar. 12	2	17.9	Mar. 20
		Apr. 18	May 4	16.0	Apr. 27
Beardstown, Ill.....	14	{Mar. 11	Apr. 4	20.3	Mar. 20, 21
		Apr. 18	May 10	17.7	Apr. 26-28
Bourbeuse: Union, Mo.....	12	18	Apr. 19	13.6	19
Meramec:					
Sullivan, Mo.....	11	{7	7	12.0	7
		17	19	26.0	17
Pacific, Mo.....	11	{8	8	13.6	8
		17	21	22.5	19
Valley Park, Mo.....	14	{8	8	15.5	8
		17	21	27.2	19
Mississippi:					
Muscatine, Iowa.....	15	9	11	15.1	10
Keokuk, Iowa.....	12	10	19	13.1	17
Quincy, Ill.....	14	11	20	17.2	18
Hannibal, Mo.....	13	9	22	17.8	18
Grafton, Ill.....	18	17	23	22.0	20
Alton, Ill.....	21	17	23	25.7	20
St. Louis, Mo.....	30	20	20	30.1	20
Chester, Ill.....	27	18	24	30.7	21
Cape Girardeau, Mo.....	32	18	26	36.1	22

Table of flood stages during April and May 1939—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Missouri Basin					
Big Blue: Blue Rapids, Kans.....	<i>Feet</i> 20	15	15	<i>Feet</i> 24.0	15
Grand:					
Chillicothe, Mo.....	18	16	17	19.6	16
Brunswick, Mo.....	12	16	19	13.4	17
Gasconade: Jerome, Mo.....	15	18	18	15.2	18
Missouri:					
Geddes, S. Dak.....	12	1	2	12.2	2
Blair, Nebr.....	18	3	6	19.4	4-5
Omaha, Nebr.....	19	5	7	19.4	5
Nebraska City, Nebr.....	15	3	8	17.1	6
Hermann, Mo.....	21	17	19	22.6	18
St. Charles, Mo.....	25	17	21	27.7	19
Ohio Basin					
Middle Fork of Tygart: Midvale, W. Va.....	11	16	16	13.9	16
Buckhannon: Hall, W. Va.....	10	16	18	12.9	16
Tygart:					
Belington, W. Va.....	14	16	17	16.4	17
Dailey, W. Va.....	9	16	17	12.4	16
Philippi, W. Va.....	20	16	17	23.6	16
West Fork:					
Weston, W. Va.....	15	16	17	20.2	16
Clarksburg, W. Va.....	5	16	17	8.2	17
Monongahela:					
Lock No. 7, Greensboro, Pa.....	30	16	17	35.0	17
Lock No. 4, near Charleroi, Pa.....	30	17	17	32.6	16
Little Kanawha:					
Glenville, W. Va.....	23	16	17	33.0	16
Creston, W. Va.....	20	16	16	33.2	17
Hocking: Athens, Ohio.....	17	16	19	19.0	17
Elk: Clay, W. Va.....	18	16	17	23.5	16
Scioto: Chillicothe, Ohio.....	16	17	18	17.3	18
Little Miami: Kings Mills, Ohio.....	17	15	16	18.3	16
Licking: Falmouth, Ky.....	28	16	18	29.7	17
Green:					
Lock No. 6, Brownsville, Ky.....	28	18	19	28.3	18
Lock No. 4, Woodbury.....	33	{Mar. 31 Apr. 18	2 20	34.6 34.2	2 19
Lock No. 2, Rumsey, Ky.....	34	{6 18	8 30	34.1 37.7	7 23
West Fork White:					
Anderson, Ind.....	10	16	18	14.0	16
Noblesville, Ind.....	12	17	19	13.9	17
Elliston, Ind.....	18	16	25	27.8	20
Edwardsport, Ind.....	12	16	May 1	19.6	21
East Fork White:					
Seymour, Ind.....	14	16	Apr. 20	17.7	17
Williams, Ind.....	10	18	24	18.4	20
Shoals, Ind.....	25	20	24	29.7	21
White:					
Petersburg, Ind.....	16	17	29	24.8	23
Hazleton, Ind.....	16	17	May 1	27.0	23
Wabash:					
Bluffton, Ind.....	10	18	Apr. 18	10.0	18
Wabash, Ind.....	12	16	20	17.7	17
Lafayette, Ind.....	11	16	25	21.2	17
Covington, Ind.....	16	16	26	25.5	19
Terre Haute, Ind.....	14	16	28	22.0	20-21
Vincennes, Ind.....	14	17	May 1	22.3	24
Mount Carmel, Ill.....	17	17	2	25.2	24
New Harmony, Ind.....	15	19	3	21.0	25
Ohio:					
Point Pleasant, W. Va.....	40	17	Apr. 20	43.8	19
Dam No. 28, Huntington, W. Va.....	50	17	19	50.6	18
Dam No. 29, Ashland, Ky.....	51	17	20	54.6	18
Dam No. 30, Greenup, Ky.....	52	17	21	56.0	18
Portsmouth, Ohio.....	50	17	21	55.2	19
Dam No. 32, Vanceburg, Ky.....	53	17	21	56.0	19
Dam No. 33, Maysville, Ky.....	50	17	22	55.9	19
Dam No. 35, Oneonta, Ky.....	48	17	22	54.0	19
Dam No. 36, Brent, Ky.....	52	17	22	57.9	19
Cincinnati, Ohio.....	52	17	23	58.1	19
Dam No. 37, Fernbank, Ohio.....	50	17	23	57.3	19
Dam No. 38, Grant, Ky.....	51	17	23	56.7	20
Dam No. 39, Florence, Ind.....	48	17	22	51.0	20
Louisville, Ky.....					
Upper gage.....	28	18	24	33.6	20-21
Lower gage.....	55	18	24	60.6	20-21
Dam No. 43, Evans Landing, Ind.....	57	19	24	61.8	21
Dam No. 44, Leavenworth, Ind.....	53	18	25	61.2	21
Dam No. 45, Addison, Ky.....	47	18	26	53.0	22
Tell City, Ind.....	38	17	27	45.1	22
Dam No. 46, Owensboro, Ky.....	41	19	26	44.0	22
Dam No. 47, Newburgh, Ind.....	38	17	29	45.8	23
Evansville, Ind.....	35	17	30	43.4	23
Dam No. 48, Cypress, Ind.....	38	18	30	45.7	24
Mt. Vernon, Ind.....	35	18	May 1	44.2	25
Dam No. 49, Uniontown, Ky.....	37	19	2	47.2	26

Table of flood stages during April and May 1939—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
MISSISSIPPI SYSTEM—continued					
Ohio Basin—Continued	Feet			Feet	
Ohio—Continued.					
Shawneetown, Ill.-----	33	{ 9	Apr. 12	33.7	10
		{ 17	May 3	48.0	27
Dam No. 50, Fords Ferry, Ky.-----	34	{ 8	Apr. 13	35.6	10
		{ 17	May 4	50.5	27
Dam No. 51, Golconda, Ill.-----	40	{ 21	2	46.3	27-28
Dam No. 52, Brookport, Ill.-----	37	{ 18	4	45.1	28
Dam No. 53, Grand Chain, Ill.-----	42	{ 6	5	51.0	26-27
Cairo, Ill.-----	40	{ 8	5	50.5	25-26
White Basin					
Black:					
Leeper, Mo.-----	11	{ 17	Apr. 18	13.6	17
Williamsville, Mo.-----	11	{ 16	19	15.6	18
Poplar Bluff, Mo.-----	14	{ 17	20	17.4	19
Black Rock Ark.-----	14	{ 6	12	15.4	8
		{ 16	May 6	24.8	18
White:					
Calico Rock, Ark.-----	18	{ May 17	Apr. 19	30.5	17
		{ May 27	May 28	24.7	May 27
		{ Apr. 17	Apr. 21	33.3	Apr. 18
Batesville, Ark.-----	23	{ May 14	May 16	24.1	May 15
		{ May 28	29	28.6	28
Newport, Ark.-----	26	{ Apr. 18	Apr. 25	30.3	Apr. 20
Georgetown, Ark.-----	21	{ May 17	May 9	27.0	24
		{ 19	(¹)	22.8	May 31
		{ Feb. 5	Apr. 3	29.8	{ Mar. 6-7
					{ Apr. 15-17
Clarendon, Ark.-----	26	{ Apr. 16	May 15	30.7	Apr. 28-30
		{ May 26	(¹)	26.7	May 31
		{ Feb. 8	Apr. 9	28.3	Mar. 7-8
St. Charles, Ark.-----	25	{ Apr. 17	May 18	29.0	May 2
Arkansas Basin					
North Canadian:					
Canton, Okla.-----	9	{ 6	Apr. 7	9.2	Apr. 6
		{ 7	20	12.0	9
Yukon, Okla.-----	8	{ May 10	May 11	8.4	May 10
Poteau: Poteau, Okla.-----	21	{ Apr. 6	Apr. 8	26.8	Apr. 8
		{ 16	21	35.2	18
Petit Jean: Danville, Ark.-----	20	{ 7	9	22.5	8
		{ 16	21	31.8	17
Red Basin					
Saline: Benton, Ark.-----	20	{ 16	17	27.4	17
Little Missouri: Boughton, Ark.-----	20	{ 18	19	21.3	18
Ouachita:					
Arkadelphia, Ark.-----	17	{ 6	8	20.2	8
		{ 17	20	28.2	17
Camden, Ark.-----	26	{ Mar. 31	27	37.6	21
Black: Jonesville, La.-----	50	{ 26	May 2	51.1	6
Little: White Cliffs, Ark.-----	25	{ Apr. 9	Apr. 11	25.8	9
		{ 18	24	27.8	20

Table of flood stages during April and May 1939—Continued

River and station	Flood stage	Above flood stages—dates		Crest	
		From—	To—	Stage	Date
<i>Red Basin—Continued</i>					
Sulphur:	<i>Feet</i>			<i>Feet</i>	
Ringo Crossing, Tex.-----	20	{ Mar. 26	1	24.4	Mar. 27
		{ Apr. 6	10	25.2	Apr. 6
		{ 17	21	27.5	17
Naples, Tex.-----	22	{ Mar. 29	15	28.3	1
		{ Apr. 20	26	26.3	21
<i>Lower Mississippi Basin</i>					
Big Lake Outlet: Manila, Ark.-----	10	Feb. 3	May 14	14.7	24
St. Francis:					
Fisk, Mo.-----	20	{ Apr. 7	Apr. 10	23.1	9
		{ 18	24	24.3	20
St. Francis, Ark.-----	18	{ 11	May 1	22.8	23
		{ 17	Apr. 22	15.3	18
Coldwater: Coldwater, Miss. ¹ -----	13	{ 26	30	13.6	28
		{ May 22	May 27	13.6	May 24
Tallahatchie: Swan Lake, Miss.-----	26	{ Feb. 4	16	31.7	Apr. 3
Yazoo:					
Greenwood, Miss.-----	35	Apr. 7	Apr. 20	35.9	12-13
Yazoo City, Miss.-----	29	Mar. 5	May 24	33.1	28
Mississippi:					
New Madrid, Mo.-----	34	Apr. 18	5	39.2	26
					30
Memphis, Tenn.-----	34	24	7	37.0	{ May 1-2
					Mar. 25-27
Helena, Ark.-----	44	{ Feb. 20	Apr. 2	48.2	May 3-4
		{ Apr. 26	May 10	47.5	Mar. 30
Greenville, Miss.-----	36	{ Feb. 28	Apr. 4	38.5	May 5-7
		{ Apr. 27	May 12	38.5	{ Mar. 31
Natchez, Miss.-----	48	Mar. 26	Apr. 6	49.2	{ Apr. 1
					1-3
Angola, La.-----	45	{ Apr. 5	13	48.1	May 10-12
		{ Apr. 30	May 17	46.9	Apr. 2-4
Baton Rouge, La.-----	35	{ Mar. 3	Apr. 14	38.5	May 11-12
		{ Apr. 28	May 18	37.2	Apr. 3
Donaldsonville, La.-----	28	{ Mar. 6	Apr. 12	30.2	May 10-12
		{ May 4	May 16	29.0	Apr. 2-4
Reserve, La.-----	22	{ Mar. 12	Apr. 9	23.1	May 12-13
		{ May 7	May 14	22.3	Apr. 2
New Orleans, La.-----	17	Mar. 29	Apr. 8	17.5	
Atchafalaya:					
Simmsport, La.-----	41	28	11	42.1	5-6
			15	39.1	4-7
Melville, La.-----	37	{ Mar. 7	May 17	37.9	May 12-13
		{ May 2	Apr. 14	25.3	Apr. 2-7
Atchafalaya, La.-----	25	{ Mar. 21	May 15	25.1	May 9-14
		{ May 7	Apr. 6	6.8	Apr. 6
		{ Apr. 5	May 8	6.0	May 8
Morgan City, La.-----	6	{ May 20	20	6.0	20
<i>West Gulf of Mexico Drainage</i>					
Elm Fork: Carrollton, Tex.-----	7	Apr. 17	Apr. 18	7.5	Apr. 17
Trinity: Dallas, Tex.-----	28	18	19	29.7	18
Nueces: Cotulla, Tex.-----	15	{ May 8	May 8	15.3	May 8
		{ 16	17	16.7	16
Rio Grande: Brownsville, Tex.-----	18	{ 16	16	18.2	16

¹ Continued into June.² Went slightly below flood stage Apr. 14.³ Station established Apr. 16, 1939.⁴ Crest of 33.0 occurred on Feb. 22-23.